

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-22125; Directorate Identifier 2005-NM-130-AD; Amendment 39-14745; AD 2006-18-07]

RIN 2120-AA64

Airworthiness Directives; Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model ERJ 170 Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain EMBRAER Model ERJ 170 airplanes. This AD requires replacing the very high frequency (VHF) antenna located in position 1 of the fuselage with a new, improved VHF antenna. This AD results from a report of the loss of all voice communications due to a lightning strike damaging all the VHF antennas. We are issuing this AD to prevent the loss of voice communication, which, when combined with the complexity of the national airspace system, could result in reduced flightcrew situational awareness, increased flightcrew workload, and increased risk of human error, and consequent reduced ability to maintain safe flight and landing of the airplane.

DATES: This AD becomes effective October 11, 2006.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of October 11, 2006.

ADDRESSES: You may examine the AD docket on the Internet at <http://dms.dot.gov> or in person at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC.

Contact Empresa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343–CEP 12.225, Sao Jose dos Campos–SP, Brazil, for service information identified in this AD.

FOR FURTHER INFORMATION CONTACT: Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-1175; fax (425) 227-1149.

SUPPLEMENTARY INFORMATION:

Examining the Docket

You may examine the airworthiness directive (AD) docket on the Internet at <http://dms.dot.gov> or in person at the Docket Management Facility office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Management Facility office (telephone (800) 647-5227) is located on the plaza level of the Nassif Building at the street address stated in the ADDRESSES section.

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to certain EMBRAER Model ERJ 170 airplanes. That NPRM was published in the Federal Register on August 18, 2005 (70 FR 48500). That NPRM proposed to require replacing the very high frequency (VHF) antenna located in position 1 of the fuselage with a new, improved VHF antenna.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments that have been received on the NPRM.

Request for All Very High Frequency (VHF) Antennas To Be Replaced

Air Line Pilots Association (ALPA) requests that all of the VHF antennas on the subject airplanes be replaced with the new, improved antennas. ALPA suggests that, for redundancy purposes, all of the VHF antennas should be replaced because "all" of the VHF antennas were damaged in the event that precipitated the AD.

We do not agree to require replacement of all the VHF communications antennas. Section 25.1316(b) of the Federal Aviation Regulations (FARs) (14 CFR 25.1316) requires that a major aircraft system that, if it failed, would contribute to or cause a condition that would reduce the capability of the airplane or flightcrew to cope with adverse operating conditions must be designed to be able to recover in a timely manner after exposure to lightning. In the incident precipitating this AD, the VHF communications system failed because none of the VHF antennas were able to recover. The newly designed replacement antenna required by this AD has been through considerable testing and we find that sufficient data exist to demonstrate that it meets the requirements of section 25.1316(b) and will be able to recover function of the VHF communications system following a lightning strike. Therefore, replacing the position 1 VHF communications antenna with the new antenna instead of replacing all of the VHF antennas is sufficient to ensure system recovery in the event of a lightning strike and will adequately address the unsafe condition addressed by this AD. However, operators are free to replace the position 2 and 3 VHF communications antennas with the newly designed antenna at their discretion. We have not changed the AD in this regard.

Request for Review of the Subject Airplane's Ability To Handle Lightning Strikes

ALPA also requests that the FAA look into the subject airplane's ability to adequately and safely handle lightning strikes and static discharges. ALPA gives no justification for this request.

We do not agree. This airplane model design was certificated to the airworthiness standards for lightning protection provided in part 25 of the FARs (14 CFR part 25). The purpose of these standards is to ensure that the operation of the airplane is not adversely affected when the airplane is

exposed to lightning. Beyond the event that is the subject of this AD, we are unaware of any other instances of this model airplane being adversely affected by exposure to lightning. We have made no change to the AD in this regard.

Request To Reference Parts Manufacturer Approval (PMA) Parts

Modification and Replacement Parts Association (MARPA) requests that the language in the NPRM be changed to permit installation of PMA equivalent parts. The commenter states that the mandated installation of a certain part number in the NPRM "creates a conflict with 14 CFR Section 21.303."

We do not agree with MARPA's request. We infer that MARPA would like the AD to specify the manufacturer and part number in order to permit installation of any equivalent PMA parts. We also infer that MARPA believes that it is not necessary for an operator to request approval of an alternate method of compliance (AMOC) in order to install an "equivalent" PMA part. Whether an alternative part is "equivalent" in adequately resolving the unsafe condition can only be determined on a case-by-case basis based on a complete understanding of the unsafe condition. We are not currently aware of any such parts. Our policy is that, in order for operators to replace a part with one that is not specified in the AD, they must request an AMOC. This is necessary so that we can make a specific determination that an alternative part is or is not susceptible to the same unsafe condition.

In response to MARPA's statement regarding a "conflict with FAR 21.303," under which the FAA issues PMAs, this statement appears to reflect a misunderstanding of the relationship between ADs and the certification procedural regulations of part 21 of the Federal Aviation Regulations (14 CFR part 21). Those regulations, including section 21.303 of the Federal Aviation Regulations (14 CFR 21.203), are intended to ensure that aeronautical products comply with the applicable airworthiness standards. But ADs are issued when, notwithstanding those procedures, we become aware of unsafe conditions in these products or parts. Therefore, an AD takes precedence over design approvals when we identify an unsafe condition, and mandating installation of a certain part number in an AD is not at variance with section 21.303.

The AD provides a means of compliance for operators to ensure that the identified unsafe condition is addressed appropriately. For an unsafe condition attributable to a part, the AD normally identifies the replacement parts necessary to obtain that compliance. As stated in section 39.7 of the Federal Aviation Regulations (14 CFR 39.7), "Anyone who operates a product that does not meet the requirements of an applicable airworthiness directive is in violation of this section." Unless an operator obtains approval for an AMOC, replacing a part with one not specified by the AD would make the operator subject to an enforcement action and result in a civil penalty. No change to the AD is necessary in this regard.

Request To Address Defective PMA Parts

MARPA notes that safety gaps may occur because original equipment manufacturer (OEM) parts determined to be defective may have been replaced with PMA parts that are also defective. MARPA further states that frequently design defects that arise in OEM parts will also exist in PMA parts, since they may actually only differ in part number, while sharing the same design data. Therefore MARPA requests that the defective parts be identified by manufacturer and part number in the NPRM. MARPA also suggests wording be added to the NPRM that would "embrace any present or future PMA alternatives to either the defective part or the 'new and improved' part."

From these statements, we infer that MARPA would like the NPRM to be revised to cover possible defective PMA alternative parts, rather than just OEM parts listed in the service bulletin, so that those defective PMA parts also are subject to the NPRM. We concur with MARPA's general request that, if we know that an unsafe condition also exists in PMA parts, the AD should address those parts, as well as the original parts. MARPA's remarks are timely in that the Transport Airplane

Directorate currently is in the process of reviewing this issue as it applies to transport category airplanes. We acknowledge that there may be other ways of addressing this issue to ensure that unsafe PMA parts are identified and addressed. Once we have thoroughly examined all aspects of this issue, including input from industry, and have made a final determination, we will consider whether our policy regarding addressing PMA parts in ADs needs to be revised. We consider that to delay this AD action would be inappropriate, since we have determined that an unsafe condition exists and that replacement of certain parts must be accomplished to ensure continued safety. Therefore, no change has been made to the final rule in this regard.

Clarification of AMOC Paragraph

We have revised this action to clarify the appropriate procedure for notifying the principal inspector before using any approved AMOC on any airplane to which the AMOC applies.

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the change described previously. We have determined that this change will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

This AD will affect about 43 airplanes of U.S. registry. The required actions will take about 2 work hours per airplane, at an average labor rate of \$65 per work hour. Required parts will cost \$654. Based on these figures, the estimated cost of the AD for U.S. operators is \$33,712, or \$784 per airplane.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866;
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket. See the ADDRESSES section for a location to examine the regulatory evaluation.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The Federal Aviation Administration (FAA) amends § 39.13 by adding the following new airworthiness directive (AD):

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

U.S. Department
of Transportation
**Federal Aviation
Administration**



2006-18-07 Empresa Brasileira De Aeronautica S.A. (EMBRAER): Amendment 39-14745.
Docket No. FAA-2005-22125; Directorate Identifier 2005-NM-130-AD.

Effective Date

- (a) This AD becomes effective October 11, 2006.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to EMBRAER Model ERJ 170-100 LR, -100 STD, -100 SE, and -100 SU airplanes, certificated in any category; as identified in EMBRAER Service Bulletin 170-23-0005, dated December 29, 2004.

Unsafe Condition

(d) This AD results from a report of the loss of all voice communications due to a lightning strike damaging all the very high frequency (VHF) antennas. We are issuing this AD to prevent the loss of voice communication, which, when combined with the complexity of the national airspace system, could result in reduced flightcrew situational awareness, increased flightcrew workload, and increased risk of human error, and consequent reduced ability to maintain safe flight and landing of the airplane.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

Modification

(f) Within 700 flight hours after the effective date of this AD, replace the VHF antenna located in position 1 of the fuselage with a new, improved VHF antenna in accordance with the Accomplishment Instructions of EMBRAER Service Bulletin 170-23-0005, dated December 29, 2004.

Alternative Methods of Compliance (AMOCs)

(g)(1) The Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA, has the authority to approve AMOCs for this AD, if requested in accordance with the procedures found in 14 CFR 39.19.

(2) Before using any AMOC approved in accordance with 14 CFR 39.19 on any airplane to which the AMOC applies, notify the appropriate principal inspector in the FAA Flight Standards Certificate Holding District Office.

Related Information

(h) Brazilian airworthiness directive 2005-04-04, effective April 30, 2005, also addresses the subject of this AD.

Material Incorporated by Reference

(i) You must use EMBRAER Service Bulletin 170-23-0005, dated December 29, 2004, to perform the actions that are required by this AD, unless the AD specifies otherwise. The Director of the Federal Register approved the incorporation by reference of this document in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Empresa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343–CEP 12.225, Sao Jose dos Campos–SP, Brazil, for a copy of this service information. You may review copies at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street, SW., Room PL-401, Nassif Building, Washington, DC; on the Internet at <http://dms.dot.gov>; or at the National Archives and Records Administration (NARA). For information on the availability of this material at the NARA, call (202) 741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Issued in Renton, Washington, on August 23, 2006.

Kalene C. Yanamura,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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